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Clean Version of Pending Claims

**INTEGRATED CIRCUITS USING OPTICAL WAVEGUIDE INTERCONNECTS FORMED
THROUGH A SEMICONDUCTOR WAFER AND METHODS FOR FORMING SAME**

Applicant: Joseph E. Geusic et al.

Serial No.: 09/618,648

Claims 91-99, as of May 21, 2002 (date of response to Final Office Action filed).

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~~91.~~ (Once Amended) An integrated circuit, comprising:
at least one functional circuit formed on a wafer; and
at least one optical waveguide formed in a high aspect ratio hole that extends through the
wafer.

~~92.~~ The integrated circuit of claim 91, further comprising:
a layer of highly reflective material formed to line an inner surface of the high aspect ratio
hole.

~~93.~~ The integrated circuit of claim 91, wherein the optical waveguide is formed by an anodic
etch that creates the high aspect ratio hole.

~~94.~~⁴ (Once Amended) An integrated circuit, comprising:
at least one functional circuit formed on a wafer;
at least one optical waveguide formed in a high aspect ratio hole that extends through the
wafer; and
a layer of highly reflective material formed on an inner surface of the high aspect ratio
hole.

95. The integrated circuit of claim 94, wherein the layer of highly reflective material
comprises at least one layer of a metal.

96. The integrated circuit of claim 95, wherein the layer of highly reflective material comprises:

a layer of tungsten formed on the inner surface of the high aspect ratio hole; and
a layer of aluminum formed on the layer of tungsten.

97. An integrated circuit, comprising:

at least one functional circuit formed on a wafer;

at least one optical waveguide formed in a high aspect ratio hole that extend through the wafer; and

a mirror-like layer including aluminum formed on an inner surface of the high aspect ratio holes.

98. The integrated circuit of claim 97, wherein the mirror-like layer has a thickness of approximately 300 angstroms.

99. (Amended) The integrated circuit of claim 97, wherein the mirror-like layer is formed to provide a reflective surface that is substantially uniform.

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